

JUN 03 2009

PATENT APPLN. NO. 10/585,824
RESPONSE UNDER 37 C.F.R. §1.111

PATENT
NON-FINAL

IN THE CLAIMS:

1 - 3. (canceled)

4. (original) A flame retardant for incorporation in a resin to impart flame retardance thereto, characterized as comprising a layered titanate acid in the form of nanosheets intercalated either with an organic basic compound and a halogen-free phosphazene compound or halogen-free flame-retardant nitrogen hetero-cyclic compound, or with a halogen-free phosphazene compound or halogen-free flame-retardant nitrogen heterocyclic compound.

5. (original) The flame retardant as recited in claim 4, characterized in that said layered titanate acid in the form of nanosheets is obtained by treating a layered titanate with an acid or hot water and then allowing an organic basic compound and a halogen-free phosphazene compound or halogen-free flame-retardant nitrogen heterocyclic compound to act on the layered titanate, or alternatively, allowing a halogen-free phosphazene compound or halogen-free flame-retardant nitrogen heterocyclic compound alone to act on the layered titanate to thereby effect swelling of interlayer spaces or delamination.

6. (original) The flame retardant as recited in claim 4, characterized in that said layered titanate in the form of nanosheets is obtained by treating a layered titanate with an acid or hot water and allowing an organic basic compound and/or a halogen-free phosphazene compound or halogen-free flame-retardant nitrogen heterocyclic compound to act on the layered titanate, in one pot, to effect swelling of interlayer spaces or delamination.

7. (previously presented) The flame retardant as recited in claim 5, characterized in that said layered titanate is represented by a general formula $A_x M_y \square Ti_{2-(y+z)} O_4$ (in the formula, A and M are metals differing from each other and having a valence of 1 - 3, \square is a defective site of Ti, x is a positive real number satisfying $0 < x < 1.0$, and y and z are independently 0 or a positive real number satisfying $0 < y + z < 1.0$).

8. (previously presented) The flame retardant as recited in claim 5, characterized in that said layered titanate is represented by $K_{0.5-0.8} Li_{0.27} Ti_{1.73} O_{3.85-4}$.

9. (previously presented) A flame-retardant resin composition characterized as containing 0.5 - 50 parts by weight of the layered

titanic acid in the form of nanosheets as recited in claim 4, based on 100 parts by weight of a resin.

10. (original) The flame-retardant resin composition as recited in claim 9, characterized in that said layered titanic acid in the form of nanosheets in the resin exhibits an aspect ratio (Z) in the range of 50 - 100,000.

11. (previously presented) The flame-retardant resin composition as recited in claim 9, characterized in that, besides said layered titanic acid in the form of nanosheets, it further contains 0.01 - 50 parts by weight of a halogen-free phosphazene compound, based on 100 parts by weight of the resin.

12. (previously presented) The flame-retardant resin composition as recited in claim 9, characterized in that, besides said layered titanic acid in the form of nanosheets, it further contains 0.01 - 50 parts by weight of a halogen-free organic or inorganic flame retardant, based on 100 parts by weight of the resin.

13. (previously presented) The flame-retardant resin composition as recited in claim 9, characterized in that said resin is a thermosetting resin.

14. (previously presented) The flame-retardant resin composition as recited in claim 9, characterized in that said resin is a thermoplastic resin.

15. (previously presented) The flame-retardant resin composition as recited in claim 9, characterized in that said resin is a biodegradable resin.

16. (previously presented) The flame-retardant resin composition as recited in claim 9, characterized in that said resin is an engineering plastic.

17. (previously presented) The flame-retardant resin composition as recited in claim 9, characterized in that said resin is a rubber.

18. (previously presented) The flame-retardant resin composition as recited in claim 9, characterized in that it achieves a V-0 or V-1 rating in the UL94 flame retardance test.

19. (previously presented) A resin product characterized in that it is obtained by processing the flame-retardant resin composition as recited in claim 9.

20 - 21. (canceled)